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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,750	03/15/2001	Huy Thanh Vo	303.723US1	4340

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EXAMINER

MAI, SON LUU

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 06/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,750

Applicant(s)

VO, HUY THANH

Examiner

Son L. Mai

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-54 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The Response under 37 CFR § 1.111 filed 06-11-03 has been entered. Claims 1-54 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanoi (U.S. Patent 5,708,621).

Regarding claims 1, 8, 15, 26, 30, 42 and 45, Tanoi discloses a memory array (1 in fig. 1) comprising: a number of memory cells (6) having a first source/drain region and a second source/drain region and a gate region (parts of an access transistor in a dynamic random access memory); a number of source lines (not shown) coupled to the first source/drain region of at least one memory cell; a number of bit lines (4) coupled to the second source/drain region of at least one memory cell; a number of wordlines (2) coupled to the gate region of at least one memory cell; a strapping line (118 in fig. 16) of lower resistance than the wordlines coupled to a single wordline wherein the strapping line bypasses a portion of the single wordline, and wherein the strapping line is spaced apart from adjacent conductive structures by a distance greater than a wordline pitch (fig. 18); and at least two channels (122, 126 in fig. 18) connecting the strapping line to a first and second end of the portion of the single wordline.

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Regarding claims 2, 3, 6, 7, 9, 10, 16, 17, 20, 21, 27, 28, 31, 32, 39, 44, 46, 47, 50, 51, Tanoi teaches at column 7, lines 54-57, the strapping lines comprise metal.

Regarding claims 4, 29, Tanoi shows in figure 16, the portion of the wordline bypassed by the strapping line comprises a first half of the memory cells coupled to the wordline.

Regarding claims 5, 19, 37 and 49, Tanoi teaches a memory array, comprising: a number of memory cells having a first source/drain region and a second source/drain region and a gate region (parts of an access transistor in a dynamic random access memory); a number of source lines (not shown) coupled to the first source/drain region of at least one memory cell; a number of bit lines (4 in fig. 1) coupled to the second source/drain region of at least one memory cell; a number of wordlines (2 in fig. 1) coupled to the gate region of at least one memory cell; a plurality of strapping lines (50 in fig. 4) of lower resistance than the wordlines coupled to at least one of the number of wordlines wherein the strapping lines (lines 50 consisting of two strapping lines joining at interconnecting plug 60) bypass a plurality of portions (54, 56) of a single wordline; and a plurality of channels (60 in fig. 6) connecting the plurality of strapping layers to the wordline.

Regarding claims 11, 22, 33, Tanoi shows in figure 4, the portions (38, 40, 42) of the wordlines (37) in the array bypassed by the number of strapping devices (line 36 has 2 portions) comprises a plurality of end portions (44, 46, 48) of the wordlines.

Regarding claims 12, 23, 34, 52, Tanoi shows in figure 4, the strapping devices are located on alternating wordlines in the array.

Regarding claims 13, 24, 35, 53, Tanoi shows in figure 16, the strapping devices (108, 118) are located on adjacent wordlines and staggered along the wordlines such that the portions of the adjacent wordlines that are bypassed are not adjacent to each other.

Regarding claims 14, 18, 25, 36, 54, Tanoi shows in figure 16, the strapping devices (108, 118) strap a first half portion of a number of even wordlines in the array and a second half portion of a number of odd wordlines.

Regarding claims 38, 43, the method of reducing a wordline RC time constant reads on figure 16 of Tanoi, wherein activating a second number of transistors coupled to a second portion (114) of a wordline comprises: sending a signal through a first channel (112) to a metal strapping line (108); sending the signal through the metal strapping line; and sending the signal through a second channel (116) to the second portion (114) of the wordline.

Regarding claim 40, the method of reducing a wordline RC time constant as claimed reads on figure 16 wherein activating a first number of transistors coupled to a first portion (110) of a wordline comprising activating a first number of transistors coupled to a first half of the wordline.

Regarding claims 41, 48, the method of reducing a wordline RC time constant reads on figure 4, wherein activating a selected row in a memory array comprises bypassing multiple portions (38, 40) of the wordline (37) using multiple strapping devices (strapping line 36 has 2 portions connecting at interconnecting plug 46) of lower resistance than the wordline.

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Tanoi does not explicitly depict a width of the strapping line being greater than a width of the wordlines as now included in the independent claims 1, 5, 8, 15, 19, 26, 30, 37, 42, 45 and 49. As is well known in the art, a wider conductor has lower resistance. Tanoi shows in one embodiment in figures 16-18, a strapping line 118 having low resistance (column 9, lines 33-41) and gaps between the strapping lines are large to accommodate wider strapping lines. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the strapping lines wider to lower resistance of the strapping lines and to reduce propagation delay of the strapping lines.

Response to Arguments

4. Applicant's arguments filed 06-11-03 have been fully considered but they are not persuasive. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Consider the description at column 9, lines 56-67 of Tanoi (U.S. Patent 5,708,621) which has a desire for low resistance strapping lines. One would strive to make wide strapping lines to reduce propagation delay due to the resistance of the strapping lines.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son L. Mai whose telephone number is 305-3497. The examiner can normally be reached on 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are 308-7724 for regular communications and 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



06-19-2003

Son L. Mai
Primary Examiner
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